

**BASIS FOR THE AMENDMENT**

Claim 8 has been amended as supported at page 5, lines 11-19 of the specification.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 1-31 will now be active in this application. Claims 9-17 and 20 stand withdrawn from consideration as being drawn to non-elected subject matter.

**REMARKS**

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The present invention as set forth in **Claim 1** relates to a precipitated silica which has the following physical and chemical properties:

CTAB surface area	100-200 m <sup>2</sup> /g,
BET/CTAB ratio	0.8-1.05,
DBP value	210-280 g/(100 g),
Sears value V <sub>2</sub>	10-30 ml/(5 g),
Moisture level	4-8% , and
Ratio of Sears value V <sub>2</sub> to	
BET surface area	0.150 to 0.370 ml/(5m <sup>2</sup> ).

The specification states at page 5, line 27 to page 6, line 7, that:

The precipitated silicas of the invention have not only a **high absolute number of silanol groups (Sears value V<sub>2</sub>)**, but also, when comparison is made with prior-art precipitated silicas, **a markedly increased ratio of the Sears value V<sub>2</sub> to the BET surface area**. This means that the precipitated silicas of the invention in particular have a very high number of silanol groups based on the total surface area.

The precipitated silicas of the invention have not only an increased number of silanol groups but also low microporosity, i e. a **very low ratio of BET to CTAB**.

**The combination of the features** mentioned, in particular the high ratio of Sears value V<sub>2</sub> to BET, gives the precipitated silicas of the invention excellent suitability as reinforcing fillers for elastomers. These precipitated silicas of the invention have increased rubber activity, and exhibit very good dispersion behavior and a low vulcanization time.

Emphasis added.

Applicants wish to thank Examiner Parvini and supervisory Examiner Lorengo for the helpful and courteous discussion with Applicants' Representative on October 19, 2007. The Examiner has pointed to Esch (see also page 4, 2<sup>nd</sup> paragraph of the Office Action), based on which she has calculated the Sears value/BET surface area ratio to be 0.0571 to 0.17 in Esch. Applicants disagree.

Esch et al (US 5,846,506) in view of Boyer et al (US 5,935,543) or Luginsland (US 2002/0022693) fail to disclose or suggest a precipitated silica which has the following physical and chemical properties:

CTAB surface area	100-200 m <sup>2</sup> /g,
BET/CTAB ratio	0.8-1.05,
DBP value	210-280 g/(100 g),
Sears value V <sub>2</sub>	10-30 ml/(5 g),
Moisture level	4-8% , and

**Ratio of Sears value V<sub>2</sub> to**

**BET surface area                    0.150 to 0.370 ml/(5m<sup>2</sup>).**

Esch et al (US 5,846,506) in view of Boyer et al (US 5,935,543) or Luginsland (US 2002/0022693) do not disclose the **combination of the features** mentioned, in particular the high ratio of Sears value V<sub>2</sub> to BET, which gives the precipitated silicas of the invention excellent suitability as reinforcing fillers for elastomers.

Applicants submit that it is essential to understand how silica technology works. Without such understanding it is not possible to correctly judge novelty and inventiveness of the present application. Accordingly, Applicants are offering the following explanation.

A silica has several –SiOH groups (silanol groups) on its surface. The number of silanol groups is measured by the Sears number. While it may be the case that without very special measures the **absolute** number of SiOH groups increases when the surface increases;

with regard to the **relative** number of silanol groups, i.e. the ratio Sears number/BET-surface, however, there can be significant differences.

The specification discloses at page 16, line 38 to page 17, line 16:

The Sears value  $V_2$  is a dimension allowing description of the number of silanol groups in the silica, while the BET surface area of a silica describes its specific surface area, which has a major effect on the processing behavior of a compounded material, and on its other properties after vulcanization. However, **the data relating to the absolute number of silanol groups are not themselves sufficient for adequate characterization of a precipitated silica, because precipitated silicas with a high surface area generally have a higher absolute number of silanol groups than precipitated silicas with a low surface area. The important factor is therefore the quotient calculated by dividing the Sears value  $V_2$  by the BET.** In this way it is possible to represent the reinforcement potential generated via the silanol groups per unit of specific surface area introduced.

Emphasis added.

Esch disclose an absolute range for the BET surface of 35 to 350 m<sup>2</sup>/g and an **absolute** number of silanol groups, i.e. silanol group range of 6 to 20. See col. 1, table.

As can be calculated from the examples of Esch, the ratio Sears number / BET, i.e. the **relative** silanol group density, is in a range between **0.076 and 0.1125**. In other words, the examples of Esch prove that **in Esch a low BET surface correlates to the low Sears numbers and high BET surface correlates to high Sears numbers.**

The inventors of the present invention reached the goal to increase the **relative** number of silanol groups per square meter BET surface. In other words they invented new silica having much more SiOH groups per square meters as those disclosed in Esch.

With all due respect, the analysis of the Examiner is incorrect. As explained above and proved by all examples of Esch, the Esch patent does not teach a high **relative** silanol group densities, i.e. ratio Sears number/BET surface. **One cannot simply divide absolute ranges of BET and Sears number as done by the Examiner.** In contrast, the explicit teaching of the examples of Esch has to be regarded as indicator for the **relative** silanol group

density of Esch. The highest relative silanol group density disclosed in Esch is 0.1125 which is about 25% lower than the lowest limit in the present claims.

In addition, Esch et al do not disclose the claimed moisture level. Since as discussed above, different silicas can not be easily compared, and modification of one property can easily change a range of other properties. Thus, the Examiners conclusion that Esch et al can be modified in view of Boyer et al has no basis. There is simply no reasonable expectation of success in introducing a moisture level without changing other properties.

Boyer et al and Luginsland do not cure the defects of Esch et al as they do not disclose the **combination of the features** mentioned, in particular the high ratio of Sears value  $V_2$  to BET, which gives the precipitated silicas of the invention excellent suitability as reinforcing fillers for elastomers.

Therefore, the rejection of Claims 1-8, 18-19 and 21-31 under 35 U.S.C. § 103(a) over Esch et al (US 5,846,506) in view of Boyer et al (US 5,935,543) and the rejection of Claims 1-8, 18-19, 21 and 23-29 under 35 U.S.C. § 103(a) over Esch et al (US 5,846,506) in view of Luginsland (US 2002/0022693) are believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of these rejections is respectfully requested.

The **provisional** double patenting rejection of Claims 1-8, 18-19, 21-23 and 27 over Claims 1-9, 16-18 and 19-21 of copending application Serial No. 10/542,763, is traversed.

The claims of Serial No. 10/542,763 do not disclose the **combination of the features** claimed, which gives the precipitated silicas of the invention excellent suitability as reinforcing fillers for elastomers. Thus, this rejection should be withdrawn.

Application No.: 10/542,850  
Reply to Office Action of: August 29, 2007

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

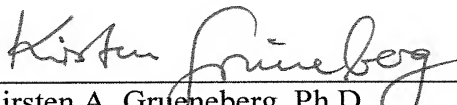
Respectfully submitted,

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